

CLAIMS

We claim:

1. An ergonomic arm support apparatus comprising:
 - (a) an armrest having a topside and an underside; and
 - (b) a dynamic mechanical support structure attached to said underside of said armrest that applies a compliant upward force to said armrest to provide a dynamic counterbalancing support for a forearm resting on said armrest.
2. The arm support apparatus recited in Claim 1 wherein said dynamic mechanical support structure comprises a flexible linkage or an articulated or pivoting assembly and a tensioning element connected to the linkage or assembly.
3. The arm support apparatus recited in Claim 2 wherein the tensioning element is a spring.
4. The arm support apparatus recited in Claim 2 wherein the tensioning element is adjustable to provide a counterbalancing force to maintain the forearm in a substantially horizontal ergonomically neutral position.
5. The arm support apparatus recited in Claim 1 wherein said armrest is rotationally or translationally attached to the mechanical support structure.
6. The arm support apparatus recited in Claim 1 wherein said dynamic mechanical support structure comprises a force transmitting mechanism and a force generating mechanism connected to the force transmitting mechanism.
7. The arm support apparatus recited in Claim 6 wherein the force transmitting mechanism comprises an articulated or pivoting mechanical assembly and the force generating mechanism comprises a spring.

8. The arm support apparatus recited in Claim 7 wherein the spring tension is adjustable to provide a counterbalancing force to maintain the forearm in a substantially horizontal ergonomically neutral position.

9. The arm support apparatus recited in Claim 6 wherein the force transmitting mechanism comprises:

a mounting bracket;
a pair of spaced parallel lever arms pivotably attached at one end to the mounting bracket;

a vertical support member pivotably attached at the other end of the pair of lever arms, the armrest being attached to the vertical support member.

10. The arm support apparatus recited in Claim 9 wherein the force generating mechanism is connected between the pair of lever arms and the mounting bracket.

11. The arm support apparatus recited in Claim 1 further comprising a chair, work bench, stand or mounting structure to which the mechanical support structure is attached.

12. An ergonomic chair comprising:

(a) a seat;
(b) a back;
(c) a pedestal connected to said seat; and
(d) the arm support apparatus recited in Claim 1 fixedly attached to said back or said seat or said pedestal.

13. An ergonomic work stand comprising:

(a) a vertical stand; and
(b) the arm support apparatus recited in Claim 1 fixedly attached to said vertical stand.

14. An ergonomic arm support apparatus comprising:

- (a) an armrest having a topside and an underside;
- (b) means connected to the armrest for providing a continuous counterbalancing compliant upward force to said armrest to dynamically support a forearm resting on the armrest in an equipoise position.

15. The arm support apparatus recited in Claim 14 wherein the means for providing a compliant upward force comprises a force transmitting means and a force generating means connected to the force transmitting means.

16. An ergonomic chair comprising:

- (a) a seat;
- (b) a back;
- (c) a pedestal connected to said seat; and
- (d) the arm support apparatus recited in Claim 14 fixedly attached to said back or said seat or said pedestal.